What is claimed:

1) An optical sensor for monitoring point temperature in remote and in situ reactions, said sensor comprising:

a glass capillary tube having a top end closed with a cap and a bulb at a bottom end for holding a liquid having good thermal expansion properties, said capillary tube having an outer and an inner vertical surface, wherein the outer vertical surface is provided with a groove and a hole is provided within the height of the groove;

a right angled prism formed by a hypotenuse, a base reflective surface and an upright reflective surface being placed in the groove formed so as to locate the reflective surface of the prism close and parallel to the inner surface of the capillary tube,

a fiber holding plate covering a hypotenuse surface of the right angle prism and provided with two holes for holding fibers, one of which is connected to a light source and one being connected to a photo detector, the fibers connected to the light source and the photo detector are located on the holding plate such that under normal conditions, the light emitted by the light source undergoes total internal reflection (TIR) at the two reflecting surfaces of the prism and is coupled back to the fiber connected to the photo detector and at the desired point temperature, the light emitted by the light source does not undergo TIR and passes through the upright reflecting surface.

2) An optical sensor device as claimed in claim 1, wherein the liquid used is transparent to light.

3) An optical sensor device as claimed in claim 1, wherein the liquid used is Isopropyl alcohol.

4) An optical sensor device as claimed in claim 1, wherein the base reflective surface of the right angled prism is located below the upright reflective surface.

5) An optical sensor device as claimed in claim 1, wherein the optical fiber, the right angle prism and the glass capillary are made of dielectric material which is non-conductive, non-inductive, non-corrosive and immune to electromagnetic interference (EMI) / Radio Frequency interference (RFI) effects.

6) An optical sensor device as claimed in claim 1, wherein the locations of a lower end and an upper end of the groove are determined by the height of the liquid inside the capillary tube at room temperature and the boiling temperature of the liquid.

7) An optical sensor device as claimed in claim 1, wherein the location of the hole inside the groove is determined by the thermal expansion of liquid and the point temperature to be monitored.

8) An optical sensor device as claimed in claim 1, wherein the optical fibers used are single mode or multi mode fibers.

9) An optical sensor device as claimed in claim 1, wherein the optical fibers used are multimode fibers.

10) An optical sensor device as claimed in claim 1, wherein the photo detector used is a Si-PIN photo detector with an optical power meter.

11) An optical sensor device as claimed in claim 1, wherein fiber holding plate is made of aluminum.

12) An optical sensor device as claimed in claim 1, wherein fiber holding plate has two holes for holding the optical fibers.

13) An optical sensor device as claimed in claim 1, wherein said device work as an optical on /off switch for a specified temperature.

14) An optical sensor device as claimed in claim 1, wherein said device is used to measure a point temperature in the range of 30 to 80 ^{0}C.

15) An optical sensor device as claimed in claim 1, wherein the said optical sensor device has accuracy of about $\pm 1^0$C to monitor the predetermined temperature /set point temperature.